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AN ESSAY
ON
TIMBER PLANTING
IN
OHIO.

BY DR. JOHN A. WARDER.

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HAS THE TIME COME IN OHIO FOR PLANTING FOR TIMBER ?

BY DR. JOHN A. WARDER.

Mr. President and gentlemen, members of the Ohio Agricultural Convention of 1880 :

Having been courteously invited to appear before you and to take the affirmative in opening this discussion upon the deeply important subject of forestry, I present myself before you with the diffidence of one who must acknowledge himself a novice in the science, and crave your patience during the few moments occupied in an endeavor to discharge the assigned duty.

In the programme for the day appears this query, "Has the time arrived in Ohio to plant trees for timber?"

In attempting a response to a question that is as yet so new to the men who themselves have aided in clearing off the dense forests that once covered the region watered by the Ohio River and its tributaries, it can hardly be expected that one who has worked with his own hands in effecting that destruction, nor you who have looked upon the work as a necessity, should be prepared to pronounce upon the limit beyond which the clearing of the land should not be allowed to proceed; nor is it at all likely that you may be ready to accept, much less to adopt as your own, all of the postulates and axioms that, on such an occasion as this, might be suggested and pronounced by any one who has made *systematic forestry* a subject of serious investigation.

As yet little or nothing has been done among us in the way of forestry. Here and there a few trees have been planted, rather for ornament than for utility. The taste for the comfort and beauty of trees is growing, however, and of the thousands who daily travel along our great highways, few are they who cannot admiringly appreciate the improvement by tree-planting about the village stations, the groups of ornamental trees clustering around the rural homesteads, the lines of trees along the country roads, and on the boundaries of cultivated fields.

These efforts of individuals to restore the sylvan beauties of the land are worthy of all praise. They are well supplemented by the Village

Tree-planting Associations, happily suggested and successfully carried out by Mr. Northrup, of Connecticut, who should have many followers in Ohio. Your attention is especially directed to his pamphlet.*

Under the happy influences of the tree-planters the cemeteries of our land are everywhere becoming the quiet resting places of the dead, sheltered by umbrageous trees, instead of the forlorn, desolate, and neglected fields of the past, so unworthy of the title, God's acre (Gottes Aker), and so discreditable to our boasted civilization.

Public and private parks are being set apart for the special culture of these beautiful natural objects, and they become the most agreeable resorts, and are means of instruction for the people. All these encourage a love for trees and increase our knowledge of them, and to that extent are necessary to forestry.

In this, however, the people of our country have much to learn. The general want of familiarity with our sylvan wealth, either collectively or individually, is a matter of surprise to those who have made this matter a study.

Upon this occasion it may be admissible to refer more particularly to a single tree, which is destined to become a factor of no mean importance in the future forests of our land, and through them to solve one of the great problems of the iron road—the cross-tie question, and the future supply of sleepers.

We may be pardoned for having a State pride in this tree, for though not a native of Ohio, it was here that the distinctive characters of the *Speciosa Catalpa*, the Western species, were first pointed out and presented to the public. It was here that it was first planted and distributed by General Wm. Henry Harrison, who brought it from its native home on the Wabash. It was here that its merits as a perdurable timber were published by him at an agricultural meeting in Hamilton county, when he urged his fellow-farmers, as early as 1825, to plant the tree extensively for its great value as timber.

It was in Dayton, Ohio, that its great beauty as a shade tree was observed by Dr. J. Haines, who propagated and distributed the plants that now ornament the streets of that city. In 1853 it was recognized as distinct from the *Catalpa* of the nurserymen, that had been brought from the Eastern States, and was then published in a magazine devoted to horticulture and rural affairs,† that was printed in Cincinnati.

* Tree-planting Economic and Ornamental, and Village Improvements. By B. G. Northrup.

† Western Horticultural Review, Aug., 1853.

The brothers Teas, enterprising nurserymen, next propagated the tree and distributed it widely. Further honors to the *Catalpa* and to our State have resulted from a great devotion to the timber interests manifested by Mr. E. E. Barney, of Dayton, who has bestowed much time and money, in the most disinterested manner, in the collection and diffusion of information* respecting this valuable tree, and in sending out its seeds, some of which have reached far distant lands on other continents.

From all which it appears, that though itself a native of another region of our country, the merit of the introduction of the *Catalpa speciosa* is due to the intelligence and energy of the citizens of our own State. Though it is not pretended that we have originated or created a new tree, we have presented one to the world that had heretofore escaped the observation and notice of the botanists—a tree of which it is said (by one who knows that whereof he doth affirm), “Every day’s experience establishes me more firmly in the opinion that it (the *Catalpa speciosa*) will prove to be one of the very best, if not the very best tree in the Middle American States, and with a southern limit very far beyond any of our Northern trees.”

But let us now address ourselves more especially to the question before us: “Is it time for us in Ohio to plant trees for timber?”

Yes! Yes, truly, and most emphatically, my dear fellow-countrymen of Ohio, the time *has fully come* when we, the inhabitants of this glorious possession, should, as a duty, plant trees for timber.

Certainly we already have many warnings that it is indeed high time for us to set about doing something toward the restoration of the forests which the necessities of agriculture and the advancing wave of civilization have so rapidly diminished within a century of occupation, in extensive regions of our noble State.

The clearing of the land was a necessity for its occupation and application to agriculture. In this matter every land owner must be left free to decide for himself and for his own acres. No man nor set of men may let nor hinder him from destroying or restoring his forests; nor can his movements be controlled by legislative enactments as in other countries, since the policy of our republic is that of *non-interference*. But we have also an axiom in our policy, that the best plans are ever those which conduce to the greatest good of the greatest number of the people; and whenever these may be presented in acceptable form, it is hoped and believed that such propositions will receive support.

So great is the American statesman’s confidence in the general good

* Facts for Information on the *Catalpa* Tree.

sense of the people, and in their capacity for self-government, that all great questions may be safely left to the popular tribunal.

When new propositions happen to be presented to the people for solution, however, they may sometimes need a certain amount of educational training and enlightenment to prepare them for a wise decision.

The present theme is, perhaps, one of that character to our fathers and to many of ourselves, who have lifted up axes upon the thick trees and prostrated those princes of the forest which had for centuries reared their proud heads and reigned as monarchs of all they might survey. Those of us who have laboriously cleared the land of these encumbrances have triumphed in the unequal contest, and may well congratulate ourselves on having released the fertile soil from its forest thralldom, to receive the vitalizing sunshine, and to smile for us with productive farms and happy homes, surrounded with luxuriant fields of food-crops for man's use, convenience, and enjoyment. Flushed with our triumphs over barbaric nature, such may ask, "Why plant more trees and again relegate these smiling fields to the bondage of the savageism of the forest times?"

No! This clearing of our fertile lands is, indeed, right and proper; it will go on, and it should continue, for a *certain period* and to a *certain extent*. Whatever this extent may be must depend upon so many circumstances connected with the physical conditions of a wide extent of territory, that the problem becomes difficult of solution, and requires, for its proper consideration, a knowledge of many branches of natural history. It need not now be discussed. Sufficient, that man's experience and observations in other regions of the globe will aid us in attempting a solution. From these we learn that from one-fifth to one-fourth part of any considerable stretch of country should be occupied by trees in order to produce the best results in the physical conditions necessary for the greatest productiveness of the soil, and for the highest development of humanity. Applying this to our own State, let us ask, how is it now in Ohio in this respect? What is the ratio, at present, between the wooded and the cleared portions of our State? The statistics of this important problem are not so complete as we could desire, but such as they are, are well portrayed in General Walker's Atlas of the United States Census of 1870.

In his message of last year our Governor graciously devoted a brief paragraph to this subject; a subject indeed, of so great prospective importance to the future destinies of the millions who are to tread upon the soil of Ohio, that our chief executive, and our legislative bodies, as well as the humblest citizen, might profitably make it a subject of laborious and continued study.

It appears that in the course of seven years the area of the woodland in Ohio was reduced from about nine and three-quarter millions, in 1870, to a little more than five million acres in 1877.

This shows that more than four million acres of woodland, nearly one-half of that returned by the last United States census, has been destroyed in the brief period of seven years. Should these figures prove to be correct, they show a frightful destruction of our woodlands, which must be followed, in the future, by their legitimate results of altered and deteriorated climate, diminished fertility and productiveness of the soil, in some places approaching barrenness, in the drying up of springs and streams, with irregularity in the flow and discharge of our navigable rivers, and, eventually, in the relegation of our fertile fields to barrenness and desolation. * * * What has been *may again* and *will again* recur. The most fertile regions of the old world, when subjected to similar treatment, have reached this sad result under the infliction of such ill treatment and abuse of God's gifts; it is but a question of time when the sad but inevitable results must follow, and our now fertile plains be reduced to deserts.

The traveler, Champollion, when speaking of the great desert of Sahara, in Northern Africa, where he had traced the course of former rivers and streams, and had found stumps of trees covered by several feet of sand, makes the following remark: "And so the astounding truth dawns upon us that this desert may once have been a region of groves and fountains, and the abode of happy millions." * * * He asks, "Is there any crime against nature which draws down a more terrible curse than that of stripping mother earth of her sylvan covering? The hand of man has produced this desert, and, I believe, every other desert on the surface of the earth. Earth was Eden once, and our misery is the punishment for our sins against the world of plants. The burning sun of the desert is the angel with the flaming sword who stands between us and Paradise."

The countries bordering on the Mediterranean, on all sides, were once well wooded, fertile, fruitful regions, sustaining a dense population. With the centuries came the undue destruction of the forests, and the consequent loss of fertility, followed by diminished population. Look at the famous regions to the eastward—Palestine, the land of groves, the land that flowed with milk and honey; see the adjoining regions, now marked by the mighty ruins of Palmyra and the cities of the plain. Beyond these, see the broad fields of Persia, whence Alexander drew his mighty armies, and observe the once fertile valleys of the Tigris and the Euphrates, where stood the luxurious Babylon, the Great, but Fallen;

all these once populous regions are now deserted, and, literally, became the habitation of bats and owls, in fulfillment of prophecy, clearly traceable to the destruction of the forests! Even in our own favored land, here in this New World, these scars upon the face of nature already begin to appear, and in some places on the Atlantic border tracts of farming land are already turned out as unproductive wastes.

Yes, verily, my friends, it is indeed time that we were thoroughly aroused to the importance of this matter of the conservation of our forests. We should plant shade trees and groves, shelter-belts and woods; yes, and where suitable conditions exist, we should also plant extensive forests for the sake of their future prospective, but certain benefit to ourselves and those who are to come after us. Why will we not learn from the experience of past ages, which is everywhere expressed so plainly in the history of nations, and *impressed* so manifestly in the *desert scars* of the earth?

Let us take warning betimes and begin now, and at once undertake the *preservation of our forests*.

Forests are the conservators of moisture, the sources of the streams. "The tree is father to the rain," was a favorite saying of Mahomet.

Then, again, we must remember that time is needed for the production of a tree. The botanists call them *perennial* plants, because they continue their existence *through* the years. Vegetables of this class do not build up their massy structures, composed of concentric layers of solid fiber cells, with the rapidity of the fungi, some of which will evolve millions of their cells in a few hours, visibly enlarging while we behold.

Nor can the trees be compared, in their periods of growth and the quickness of their cash returns, with the familiar tillage-crops of the agriculturist. The weeks and months needed for the production and perfecting of garden and farm crops are represented by the decades and centuries of years required for clothing the denuded surface with forest growths of mature and useful size. It is, therefore, high time to begin the work.

Be not discouraged, however. Trees grow fast enough. One of the classic writers of the age, who fully appreciated trees, put his own sentiments into the mouth of one of his rustic characters when he wrote: "Be aye sticking in a tree, Jock, it will be growing the whiles ye are sleeping."

Those of us who are now past middle life, no doubt many of you now present, can point to noble trees which have grown within your own recollection; some of them, perhaps, were planted by your own hands. Strange as it may be, however, it seems nevertheless true, that old men, those who can not expect to see nor to reap the fruits of their

labors in forestry, are the most energetic tree planters, rather than those just entering upon life, with a bright future opening up to them decades of prospective enjoyment, and with a reasonable expectation of life even comparable to the term necessary for the development of a useful tree. Old men are proverbially the tree-planters everywhere.

In regard to their periods of development, there is a great diversity among trees; some have a brief rotation. The coppice growths in European forestry are often utilized in periods of ten or fifteen years. In our own country, too, we have many trees of short rotation, and some of the most useful and most profitable trees are of this character.

The *black locust* may be harvested after it has grown from twenty to thirty years.

The *catalpa speciosa*, in the same period, will make good cross ties and fence posts.

The *ailanthus* very soon attains a useful size, and for certain purposes has been very highly commended, both in this country and in Europe. Professor C. S. Sargent is advising its extensive plantation, and some years ago it was spoken of as the most promising tree for the arid plains of the south-west.

The forests of *Scotch pine* in Germany are allowed sixty years to reach their useful size for fuel and for timbers.

The *birch* there reaches its maturity in about half a century.

The *willow*, used for charcoal, needed in the manufacture of gun-powder, may be cut after growing twenty years, or even less.

Chestnut, in its second growth, is most profitably cut every twenty or twenty-five years.

The beautiful wood of the wild cherry soon reaches a profitable size for many purposes, though for saw-logs and lumber the trees should be larger.

Many individual trees, planted by the pioneers upon the broad plains of Nebraska, within the few years that white men have occupied the so-called "American desert," have already attained to useful size, and will yield each a cord of fire-wood to cheer their owners. While the census reports represent the extent of wood lands in Ohio as covering about one-third of its total area, which is a full ratio for lands situated like ours, we are not informed as to its condition. The skillful forester, however, cannot fail to observe that these tracts are very far from being in a condition to yield the best results, either economically or in their influence upon the climate and water courses of the adjacent regions, and he finds them much less satisfactory in regard to their own improvement and perpetuation by succession.

Nearly all our wood-lands have been culled severely, robbed of their most valuable products and species; they are rarely in a condition for natural reproduction. In many cases they have been carefully cleared up, aye, charred up by the removal of all their undergrowth, both of bushes and of young forest trees, and they are even deprived of nature's own favorite carpeting, composed of the fallen spray, the leaves, the logs, with the mosses and lichens that feed upon these decaying tissues. All these make up an admirable mulching material, that prevents evaporation, and which receives and retains the fallen rain, which quietly sinks into the mellow soil beneath, but which, when falling upon the bared surface of cleared lands, quickly escapes in rushing and destructive torrents. Some very neat and would-be careful and economical farmers, after thus cleaning up their wood-lands, attempt to render them profitable by laying them down to grass, and then use the woods as pasture fields. Very beautiful they are considered by the poet, but not by the forester, who sees in all this but the garnished tomb of the trees.

Yes, my friends, the time has indeed arrived when we, as a people possessing a full share of common sense, ought to realize the absolute necessity for devoting a portion of our energies and intelligence to the conservation and care of our sylvan treasures, and this will be followed by planting anew the waste tracts, and untillable hillsides, and corners, or rocky ledges, with suitable trees.

We should plant forest trees for ornament to the landscape. We should plant them for shelter to our crops, our cattle, and ourselves.

Trees should be planted to guard against the failure of the water supply of the country.

Woods should be preserved for their influence in regulating the temperature and humidity of the atmosphere, for it is established by long continued observations made at the forestal stations of Europe, that the woods are *cooler in summer and warmer in winter*, and that they contain more moisture when compared with tracts of open lands in the same regions.

Finally, we should plant forests were it even for their use, and for the valuable products they yield for our consumption in the multifarious demands of civilized life.

In all this we are forced to acknowledge our ignorance as to the best means of beginning this new industry—this new and important branch of agriculture. We are brought to a stand by the grave question of *How to do it?*

The Rev. Frederick Starr, of St. Louis, in a very excellent article presenting the urgent need for the preservation of our forests, which ap-

peared in the United States Agricultural Report for 1866, appeals for Government aid, in lands and appropriations, to support and carry on suitable nurseries and forest plantations for the common good, as exemplars of such a character as no private individual can afford.

More recently some of yourselves, joined by hundreds of earnest men in very many of the States, memorialized Congress to send a suitable and well-informed commissioner to Europe to gather up important and valuable information that should be adapted to our conditions and wants, which might enable us to emulate in our own country the perfected plans of their admirable systematic forestry management. Though urgently and persistently presented to the Senate and House Committees, those bodies could not be persuaded to report upon the bills and memorials laid before them.

It may well be asked, Why should not this important subject be referred to those great institutions founded upon the Government land-grants for the endowments of *agricultural* and *mechanical colleges*? This has already been urged, and a few of them are paying some attention to forestry and tree-planting.

Some of you now present may recollect that a similar convention of agriculturists, assembled in this chamber in 1872, did me the honor to listen to a set of resolutions begging the managers of our own *Agricultural College* to take the preliminary steps toward the teaching of forestry by beginning the establishment of an *arboræum* upon a part of their extensive grounds here at the Capital of Ohio, where, eventually, all the woody plants possible to the soil might be grown, and be ever open to the inspection of students and interested visitors.

Even at this late date I feel impelled to record the gratifying circumstance that the Convention of 1872 did itself credit by heartily endorsing the offered resolutions and to acknowledge that the effort of that day, though barren in tangible or visible results upon the broad acres of the college farm, was not absolutely a case of wasted effort in the cause, nor of *love's labor lost*.

There is now undoubtedly a more encouraging outlook for the patriotic statesman, in this direction, as manifested in the increased interest felt by many in the subject of forestry. This is seen in the daily and agricultural press, and in the fact that the topic under discussion should have been put upon the programme for this meeting, and, my good friends let me add, in the marked attention and apparent interest you have shown in this imperfect response to the question before us, and to which query is rendered the decided affirmative response.

Yes! yes, truly and most emphatically, the time has fully come when we, the people of Ohio, should plant trees for timber.



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